

The NSH Histology Training Program is intended to create a histology training/onboarding resource for individuals with relevant education and/or experience to become a histotechnician/histotechnologist. This program leverages both self-paced didactic training that aligns with the technical skills needed to perform core histology, as well as live support and live sessions.

This program is intended to be completed online and will be flexible so that barriers such as time, geographic location, and other responsibilities do not prevent someone from pursuing a histology career. NSH estimates it takes 4 weeks to complete the course but is available for 6 months from the time of purchase.

**The best participant for this program would fit 1 or more of these criteria:**

- AP lab aides
- People coming from research labs
- Med techs
- Industry sales representatives needing histology training
- Those with a basic of understanding of a working AP lab (e.g. HIPPA, CLIA)
- Individuals that have working exposure to the scientific method
- Individuals that have knowledge in general biology, anatomy and physiology, and chemistry

**All participants should have:**

- Access to internet and computer or other device that allows for both viewing webinar style content and uploading assignments.
- Ability to self-motivate.
- Willingness to seek assistance when needed to grasp concepts.

### Program Outline and Learning Objectives

MODULE	LEARNING OBJECTIVES
Module 00: Tissue ID	<ul style="list-style-type: none"> <li>• Understand the basic tissue types and their purpose</li> <li>• Describe basic morphology of the 4 tissue types</li> </ul>
Module 01: Fixation	<ul style="list-style-type: none"> <li>• Define fixation</li> <li>• Determine and apply correct fixatives for requested procedures</li> <li>• Explain the theory and purpose of fixation in the histology process</li> <li>• Identify commonly used reagents (formalin, alcohol, and alcohol in relation to smears)</li> <li>• Identify poorly fixed tissue</li> <li>• Analyze variables that affect fixation</li> </ul>

**Questions?** Contact NSH Education Director, Connie Wildeman, [histo@nsh.org](mailto:histo@nsh.org) or 443-535-4060.  
Register today: [www.elearn.nsh.org](http://www.elearn.nsh.org)

## Histology Training Program Course Overview

	<ul style="list-style-type: none"> <li>• Model proper storage and use of fixatives</li> <li>• Make use of basic safety considerations in relation to fixation</li> </ul>
Module 02: Grossing	<ul style="list-style-type: none"> <li>• Understand the basic safety consideration in relation to grossing</li> <li>• Explain theory and purpose of grossing as it relates to the histology lab</li> <li>• Experience grossing (live or virtually)</li> <li>• Define grossing</li> <li>• Explain the importance of sample selection and how it correlates to specimen orientation at embedding</li> </ul>
Module 03: Processing	<ul style="list-style-type: none"> <li>• Understand what appropriate degree of decalcification</li> <li>• Identify appropriate processing protocol for each kind of tissue</li> <li>• Select appropriate processing time</li> <li>• Identify use cases for commonly used reagents (paraffin, xylene, alcohol)</li> <li>• Explain processing its theory and purpose (e.g how issues experienced later could be related to processing)</li> <li>• Define processing</li> <li>• Explain the purpose of decalcification</li> <li>• Understanding and properly maintaining your tissue processors.</li> <li>• Identify under processed tissues</li> <li>• Identify basic issues related to processing</li> <li>• Recognize proper use and maintenance of processing solutions</li> <li>• Compare paraffins and explain why someone may choose one paraffin over another</li> <li>• Make use of basic safety considerations in relation to processing</li> </ul>
Module 04: Embedding:	<ul style="list-style-type: none"> <li>• Determine correct mold size for the specimen being embedded</li> <li>• Define embedding</li> <li>• Explain the theory and purpose of embedding</li> <li>• Maintains accurate identification of the specimen</li> <li>• Determine proper tissue orientation</li> <li>• Recognize proper use and maintenance of embedding paraffin (e.g. temperature)</li> <li>• Relate why paraffin may be different in embedding than it is in processing</li> <li>• Understanding and properly maintaining your embedding centers</li> <li>• Make use of basic safety considerations in relation to embedding</li> </ul>
Module 05: Microtomy	<ul style="list-style-type: none"> <li>• Selects correct procedures regarding section thickness and number as defined in procedures</li> <li>• Define microtomy</li> <li>• Distinguish between acceptable vs. unacceptable sections (activity online)</li> <li>• Explain the theory and purpose of microtomy</li> <li>• Recognize proper tissue orientation and facing in order to obtain a representative section</li> </ul>

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	<ul style="list-style-type: none"> <li>Identify why artifacts and other issues may be related to microtomy (not all inclusive, but basic examples)</li> <li>Understanding and properly maintaining your microtome</li> <li>Comparing slides and explain why someone may choose one slide over another</li> <li>Make use of basic safety considerations in relation to microtomy</li> </ul>
Module 06: Staining	<ul style="list-style-type: none"> <li>Explain theory and purpose of staining</li> <li>Define staining</li> <li>Compare the different methods of staining in the histology lab</li> <li>Recognize the terminology of different stains (Special nuclear and cytoplasmic stains, enzymes, polychrome)</li> <li>Determine correct mounting medium for each type of slide/stain in order to insure maintenance and quality of the finished slide</li> <li>Recognize proper use and maintenance of stains and solutions</li> <li>Make use of the basic safety consideration in relation to staining</li> </ul>
Module 07: The H&E:	<ul style="list-style-type: none"> <li>Purpose and theory of H&amp;E</li> <li>Explain the stains and chemicals used in the H&amp;E protocol - types of hematoxylins, eosins, differentiator solutions, bluing solutions, deparaffinization (xylene, alcohol, water), dehydration (alcohol, xylene)</li> <li>Identify acceptable vs unacceptable staining</li> <li>Interpret common issues with staining</li> <li>Analyze the steps of the H&amp;E staining process</li> <li>Compare regressive and progressive staining</li> <li>Recognize proper use and maintenance of staining and other solution(s)</li> </ul>
Module 08: Special Stains	<ul style="list-style-type: none"> <li>Justify the use of special stains (include list here – also cross reference with existing resources from the learning library – i.e. connective tissue, etc. Use of controls on special stains</li> <li>Outline the basic steps in commonly used special stains (e.g. congo red, PAS-Jones, Steiner-spriochete)</li> <li>Recognize proper use and maintenance of staining and other solution(s) required in staining procedures</li> <li>Understand the basic safety consideration in relation to special stains</li> </ul>
Module 09: Microscopy	<ul style="list-style-type: none"> <li>List the steps in kohler illumination</li> <li>Identify the basic parts of a light microscope</li> <li>Identify the purpose of different types of microscopes (fluorescent microscope, light, electron, polarizing)</li> <li>Explain how to properly maintain your microscope</li> <li>Understand the basic safety consideration in relation to microscopy.</li> </ul>
Module 10: Immunohistochemistry	<ul style="list-style-type: none"> <li>Summarize basic antibodies</li> <li>Explain the importance of preanalytics.</li> </ul>

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	<ul style="list-style-type: none"> <li>Identify causes of common IHC staining problems in including the importance of preanalytics</li> <li>Understand the basic safety considerations in relation to IHC staining</li> </ul>
Module 11: Advance Topics (Digital Pathology and Molecular)	<ul style="list-style-type: none"> <li>Explain the role of the histotech in digital pathology</li> <li>Summarize the development of digital pathology.</li> <li>Identify how molecular testing applies to the histotech</li> <li>Explain how the histotech is involved in molecular testing.</li> </ul>
Module 12: Career Planning and Pathways	<ul style="list-style-type: none"> <li>Explain the importance of proper training for the histotech.</li> <li>List opportunities in your lab to support the development of histotechs.</li> <li>Summarize the relationship between histology and pathology</li> <li>Outline opportunities in a histology career</li> </ul>

### Learning Module Formats:

- OnDemand didactic training that aligns with articulated Learning Objectives with assessment to measure content knowledge (~60-70% of program).
- Content is presented in various formats including webinars, interactive assessments and activities including discussion posts, and 2 live sessions presented via Zoom.
- NSH will provide a subject matter preceptor to help provide technical guidance and feedback to active participants on assessments, discussion forums, individual questions.
- Live sessions that will be led by subject matter experts. Topics covered will include (but are not limited to) troubleshooting; commonly missed assessment questions; tissue orientation; grossing observation.
- Small group or 1:1 session to discuss any issues or questions led by course preceptor.

### Continuing Education Credits

The HTP also qualifies for NSH continuing education credits. To successfully complete this program, participants are required to complete all assignments, knowledge checks, knowledge assessments, discussions, live session, live Q/A session.

Upon completion of the HTP participants will receive 22 CEUs on their CE Transcript with NSH. The 22 hours are earned via 13 webinar hours, ~7 activity/assessment hours, 2 live session hours for a total of 22 hours. *Please note*, activity and assessment hours are estimated and may take a participant a little more or little less time based on individual learning pace.

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### Certificate of Completion

After completing the course participants will be asked to complete a course survey. Upon completion of the course survey the participant will be able to print their Certificate of Completion.

### Cost

Membership Status	Price
NSH Enhanced Member	\$1125.00
NSH Core Member	\$1190.00
Non-Member	\$1250.00

*Group rates are available. 3-5 people 5% discount; 6-9 people 15% discount; 10+ 20% discount*

If you are interested in purchasing this product and are from a UN recognized developing nation, you may qualify for a discounted rate. Please email [histo@nsh.org](mailto:histo@nsh.org) to inquire.

### Course Faculty

The HTP was developed by the NSH in conjunction with several subject matter experts who contributed their time and knowledge to this important program. On behalf of NSH we would like to thank and acknowledge the great work they have done.

#### Curriculum Development & Review Team

- Elizabeth Chlipala, HTL(ASCP)QIHC
- Beth Cox, HT(ASCP)HTL, QIHC(ASCP), CT(ASCP)
- Kim Feaster, HTL(ASCP)
- Kelli Goodkowsky, Med, HT(ASCP)
- Tim Morken, HTL(ASCP)
- Diane Sterchi, MS, HT(ASCP)HTL

#### Faculty

- Clifford Chapman, MS, HTL(ASCP)QIHC
- Elizabeth Chlipala, HTL(ASCP)QIHC
- Kim Feaster, HTL(ASCP)
- Jamie Pert, HTL(ASCP)QIHC, MB(ASCP)
- Jerry Santiago, PhD, HTL(ASCP)QIHC
- Shana Splawn, MBA
- Diane Sterchi, MS, HT(ASCP)HTL

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